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The Endocrinologist

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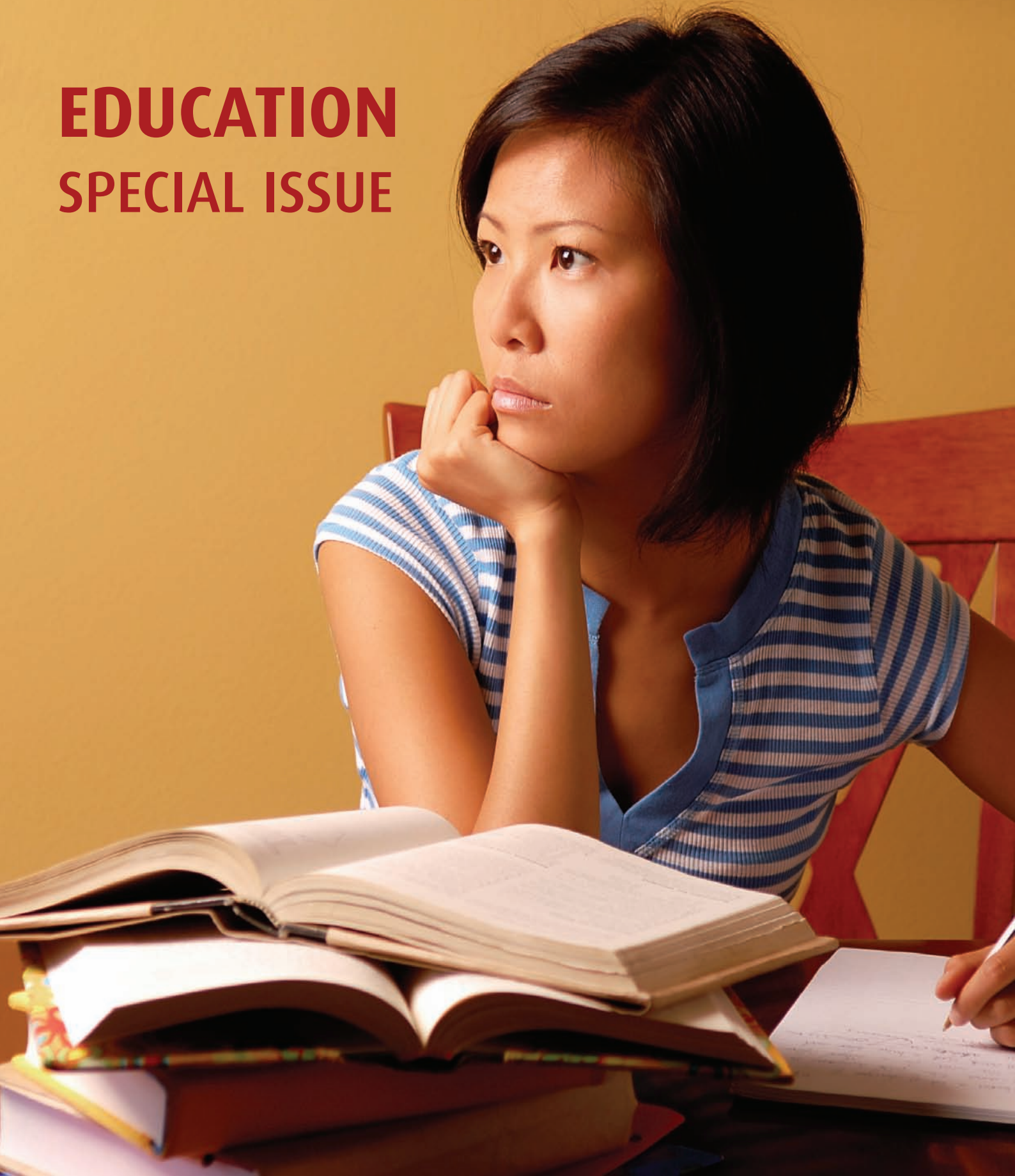
EDUCATION
SPECIAL ISSUE



EDITORIAL

Welcome to the autumn issue of *The Endocrinologist*. We welcome the new academic year with another issue focusing on educational matters.

I am delighted that we are able to publish the winning entry in the Society's annual Undergraduate Prize Essay competition. Marianne Neary wrote on the subject of obesity - *'Does my bum look big? Or is it my jeans?'* - an abridged version of her essay can be found on page 10. Once again we had over 60 entries for the competition. While the majority were from medical students, a growing number came from veterinary and basic science undergraduates. A wide range of universities was represented in the entries, including a number of those without a significant endocrinology research base. It is clear that this competition really is raising the profile of endocrinology in universities. We launch the 2009 competition on page 3. Do encourage your students to enter.

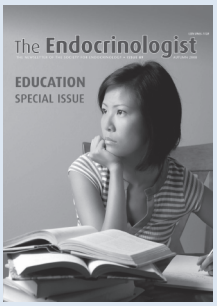
Rudy Lequin has contributed a provocative article to our education special, on the subject of the language of endocrinology as used by medical professionals and the scientists working in testing laboratories (see page 11). On page 8, Leonor Sierra writes about educating the general public, and particularly school teachers, about 'peer review', something that we all take for granted but which is perhaps not widely understood outside the scientific community. Rebecca Sowden takes the subject of science communication further, sharing her 'top tips' and experiences in this area on page 9.

As a part of this special issue on education, we also look at the career development of young researchers. Richard Dyer, Chair of the Biosciences Federation, has written an article on page 6 addressing this issue and challenging our research institutions to take an active role in the career management of scientists. Two Society members, at different stages of their careers, respond to his comments on page 7.

The Society contributes to the debate about research careers in a number of ways: by providing a forum for the discussion and a voice at the Biosciences Federation, and also by directly supporting individuals through grant support for a range of activities. Some of the recipients have described how support from the Society has influenced them and their careers: Kim Jonas received a Lab Visit Grant, Anisa Nasir, a medical student, was awarded a free place to attend a BES meeting, and Eva Fernandez Rodriguez received a grant to visit a clinical department in Europe. Do read their reports on page 12 - it is most encouraging to see how well the Society's money is being used. While we're on the subject of Society money, take a look at the feature on page 13 about the review of the Society strategy in the current financial climate.

I hope that you managed to find some sunshine over the summer and I wish you all well for the new academic year.

JOY HINSON
(J.P.HINSON@QMUL.AC.UK)



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Deadline for news items for the Winter 2008 issue: **10 October 2008**. Please send contributions to the above address.

CALLING ALL UNDERGRADUATES!
£1000 ESSAY PRIZE

Applications are invited from undergraduates for the best essay on a topical aspect of endocrinology. The top prize is £1000, with £250 each for the runners-up. The deadline for submission of essays is 2 March 2009. See full details at www.endocrinology.org/grants/prize_undergraduateessay.html. You can read the winning essay for 2008 on page 10.

New conference grant rules

Council has approved revision of the rules to allow members to apply for an overseas conference grant every calendar year rather than every 12 months. This will benefit members who wish to attend, for instance, an Endocrine Society meeting one year followed by a European Congress of Endocrinology in the following spring.

SIR CHRISTOPHER EDWARDS

We are delighted that Sir Christopher Edwards has accepted the Society's invitation to become an Honorary Member. Sir Christopher has led a distinguished career in endocrinology and was knighted in the Queen's Birthday Honours for his services to higher education, medical science and regeneration in the North East.

Grants update

The Society is pleased to have provided grants to the following recipients. For details of all Society awards see www.endocrinology.org/grants.

Sponsored Seminar Grants have been awarded to Dr Tara Kearney (£2200; seminar in Manchester, 16 May 2008) and Dr Waljit Dhillo (£1500; seminar at Hammersmith Hospital, London, 12 December 2008). In addition, **Sponsored Poster Session Grants** were awarded to Dr Philip McTernan (£2600; session at University of Warwick, 5 December 2008) and Dr Waljit Dhillo (£1500; session at Hammersmith Hospital, London, 12 December 2008).

Alana Tooze received a **Lab Visit Grant** of £1200 for a 2-month visit to University of Virginia, USA, and Iain Thompson £1310 for a 2-week visit to John Radcliffe Hospital, Oxford.

The May 2008 **Small Grants Programme** deadline saw the following successful applications. Dr Felicity Gavins (Hammersmith Hospital, London) was awarded £12 801 for research entitled the influence of sex hormones and annexin 1 on the transendothelial migration of leukocytes in conditions of inflammatory stress; Dr Alison Mostyn (School of Nursing, Nottingham) received £14 705 for the influence of type and timing of over-nutrition during pregnancy on the endocrine regulation of lipid homeostasis in the resulting offspring; Dr Derek Renshaw (University of Westminster) received £13 538 for dehydroepiandrosterone steroids are regulators of immune function via leukocyte annexin 1; Prof Michael Symonds (University of Nottingham) received £11 900 for the effect of maternal nutrient restriction followed by postnatal obesity on hepatic glucose metabolism and insulin sensitivity. The next deadline for applications is 27 November 2008.

All nine applicants for the **Undergraduate Achievement Award 2008** received an award following the July 2008 deadline. Awards are available of £300 per annum for 3 years.

Conference Grants continue to be well-subscribed; 47 grants were awarded at the April 2008 deadline and 108 at the December 2007 deadline, most of which were for the Society BES meeting. Members earning less than £50 000 per annum are eligible to apply. The next deadline is 15 December 2008.

Keeping in touch

If you do not receive regular email bulletins from the Society, it means that we do not have your valid email address. To tell us your address, contact Cherry McGinnity at members@endocrinology.org.

Christopher Gardner

The Society was very touched to receive donations in memory of Mr Christopher Gardner, who sadly died recently of a pulmonary neuroendocrine tumour. The money will fund a small grant application with relevance to research on neuroendocrine tumours.

Congratulations

We are pleased to announce that Dr Eleanor Davies has been awarded a Chair. She is Professor of Molecular Endocrinology at the University of Glasgow.

SOCIETY CALENDAR

8 December 2008
Society for Endocrinology - Midlands Endocrine Club Clinical Cases Day
National Motorcycle Museum, Birmingham

10 February 2009
Clinical Cases Meeting (in association with the RSM)
Royal Society of Medicine, London

16-19 March 2009
Society for Endocrinology BES 2009
Harrogate International Centre, Harrogate

Treasurer

Professor Michael Sheppard will step down as Treasurer on 31 December 2009. The Officers have nominated Professor Graham Williams, who is an experienced member of the Finance Committee and of Council, to be the next Treasurer. Any Ordinary/Full Member wishing to propose an alternative name should contact Pat Barter, Finance and Administration Director, for further details no later than Monday 27 October (pat.barter@endocrinology.org).

The position carries a great deal of responsibility and candidates must have substantial experience in the management of the Society and of operating a large budget, as well as a sound knowledge of investments and management accounts.

The new Treasurer will take up office from 1 January 2010 for 5 years.

BSF REPORT: Learned societies and publishing

The Biosciences Federation (BSF) published a report in July with the results of several questionnaires they conducted earlier this year. Thanks to all those of you (more than 150 from our Society) who took part in the researcher questionnaire. The survey and report were carried out by the BSF's Journals Committee, which I chair and of which Steve Byford is also a member. The full report can be seen at www.bsf.ac.uk/journals/BSF_survey_report_July_2008_FINAL.pdf. Some key details are included below as a taster.

You get more out of your Society financially than you put in

Of course, you knew that already. Your £76 membership fee gets you up to £750 of conference grant, apart from other benefits. However, now we can show that the UK university system as a whole gets more money from bioscience societies than it spends with those societies in journal subscriptions. The survey showed that the 23 societies who responded put 2.16 times as much money into the UK university system by way of grants, meeting support and other educational services than they take out by way of journal subscription and licence fees. The societies analysed contributed almost £4m of such support in the last year. You might want to make sure your Vice-Chancellor is aware of that, in the light of some of the more radical Open Access people, who want only a free repository system which would probably cause the collapse of most journals and of the support that their owner societies provide.

In addition, the report shows that all the societies provide free access to much of their journal material, usually after 12 months, although many also make selected material available earlier than that, such as review articles. Most of the societies allow researchers to self-archive free in an institutional or other repository (e.g. PubMed Central) after a delay. Most of them would allow immediate self-archiving on payment of a fee. Many of the publishers would carry out the deposit for the author, especially where a fee is paid.

Do you really know what Open Access is?

The survey of researchers, which had 1349 usable responses, showed substantial confusion about what Open Access means. Many respondents seemed unable to tell the difference between online journals that are free at the point of use (because the library has paid a subscription fee) and Open Access ones, where all the material is free. Almost half the Open Access journals that respondents said they read, and a third of those they published in, were not Open Access journals at all.

Only around 15% of the respondents had tried to obtain Open Access publication funds from their institutions or research funders to pay for author-side charges. Of these, 53% had found it very difficult or fairly difficult. Steve Byford and I are taking part in a Universities UK working group to try to resolve this issue.

Interestingly, as regards self-archived material (usually an earlier version, such as the author's submitted manuscript), only 3.5% of respondents said they access this version if they have access to the final published version, and 67% rarely or never access the self-archived version even if they don't have access to the published version.

SUE THORN

A new beginning for BSF and IoB?

The Institute of Biology and the UK Biosciences Federation plan to join forces in a new body, strengthening the position of British biologists in education, wealth-creation and environmental protection. The Society for Endocrinology's Council has approved the initiative, anticipating that it will provide a much stronger body to address common bioscience concerns.

TYPE 2 DIABETES GUIDANCE

Type 2 diabetes: National clinical guideline for management in primary and secondary care is the title of updated guidance developed by the National Collaborating Centre for Chronic Conditions at the Royal College of Physicians (RCP). The publication is available at www.rcplondon.ac.uk/pubs/brochure.aspx?e=247.

NEW RESEARCH ASSESSMENT PLAN

The HEFCE has released plans to run a pilot of the Research Exercise Framework (REF). This is being developed to replace the existing Research Assessment Exercise (RAE) by 2014. It will use bibliometric data concerning the research that is published, and how often it is cited, to assess the quality of research departments.

The results of the pilot scheme should be released in spring 2010. The scheme has been delayed by a year for the HEFCE to respond to concerns raised by the community, and the original two-track system that relied on bibliometrics for some disciplines but not for others has been abandoned. The HEFCE anticipate that the REF will be implemented in some subjects in 2010, influencing 2011 funding.

RAE 2008 results

The 2008 Research Assessment Exercise results will be revealed to universities on 17 December, then to the wider public on the following day.

Bayer HealthCare
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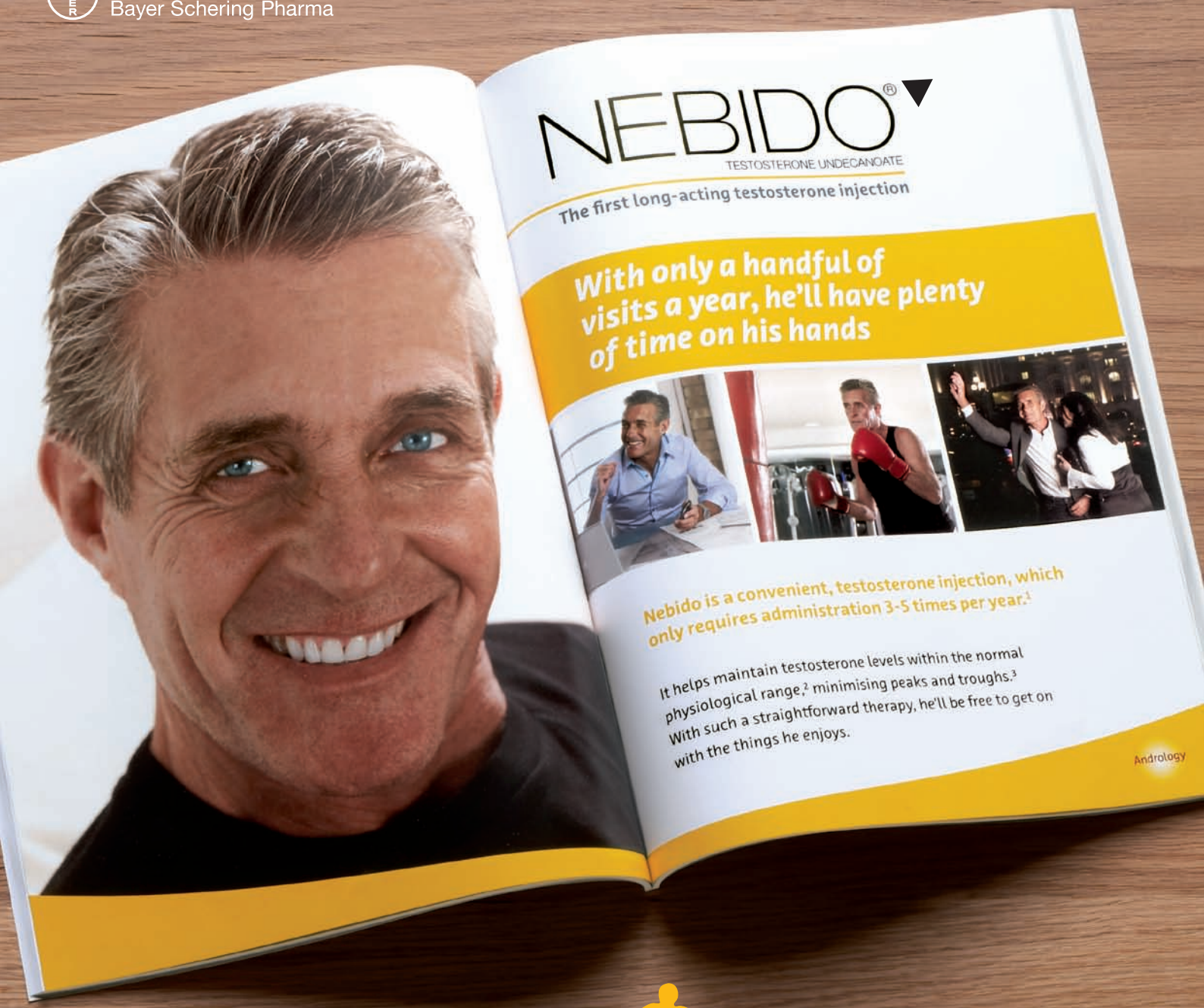


NEBIDO®
TESTOSTERONE UNDECANOATE

PRESCRIBING INFORMATION Nebido® (testosterone undecanoate) Presentation: Ampoule with 4ml solution for injection containing 1000mg testosterone undecanoate. **Uses:** Testosterone replacement therapy for male hypogonadism when testosterone deficiency confirmed by clinical features and biochemical tests. **Dosage:** One ampoule (1000mg) injected intramuscularly every 10 to 14 weeks. *Starting treatment*: Measure serum testosterone levels before start and during initiation of treatment. If appropriate, first injection interval may be reduced to a minimum of 6 weeks. *Maintenance*: Injection interval within 10 to 14 week range. Monitor serum testosterone regularly; adjust injection interval as appropriate. **Children:** Not for use in children. Not evaluated clinically in males under 18. **Contra-indications:** Androgen-dependent prostate cancer or breast cancer. Past or present liver tumours. Hypersensitivity to testosterone or any of the excipients. **Warnings and precautions:** Limited experience in patients over 65. Before therapy exclude prostate cancer. Examine prostate and breast at least annually, or twice yearly in elderly or at risk patients (clinical or familial factors). Periodically check testosterone concentrations, haemoglobin, haematocrit, liver function. Androgens may accelerate the progression of sub-clinical prostate cancer and benign prostatic hyperplasia. Monitor serum calcium concentrations in cancer patients at risk of hypercalcaemia (and hypercalcinuria). Rarely, liver tumours have been reported. Nebido may cause oedema with or without congestive cardiac failure in patients with severe cardiac, hepatic or renal insufficiency or ischaemic heart disease. In this case, stop treatment immediately. Use with caution in patients with renal or hepatic impairment, epilepsy, migraine or blood clotting irregularities. Improved insulin sensitivity may occur. Irritability, nervousness, weight gain, prolonged or frequent erections may indicate excessive androgen exposure requiring dose adjustment. Withdraw treatment if these symptoms persist or reappear. Pre-existing sleep apnoea may be potentiated. Testosterone may produce a positive reaction in anti-doping tests. Not for use in women. Not suitable for developing muscles or increasing fitness in healthy individuals. Inject Nebido extremely slowly to avoid the coughing or respiratory distress reactions that occur rarely with injection of oily solutions. Interactions reported with oral anticoagulants (requires dose monitoring), ACTH or corticosteroids, and thyroxin binding globulin in laboratory tests. **Side-effects:** Most common reactions are injection site pain (10%). Also reported are: diarrhoea; leg, breast or testicular pain; arthralgia; dizziness; increased sweating; headache; respiratory, skin or prostate disorders; acne; gynaecomastia; pruritus; subcutaneous haematoma at injection site. Other known reactions to testosterone containing preparations are: polycythaemia (erythrocytosis); weight gain; electrolyte changes; muscle cramps; nervousness, hostility, depression; sleep apnoea; very rarely jaundice and liver function test abnormalities; skin reactions; libido changes; increased frequency of erections; interruption or reduction in spermatogenesis; priapism; prostate abnormalities; prostate cancer (inconclusive data); urinary obstruction; water retention; oedema; hypersensitivity. **Basic NHS Price:** £76.70 per 1 x 4ml **Legal Classification:** POM **Product Licence Number:** 0053/0350 **Product Licence Holder:** Bayer plc., Bayer House, Strawberry Hill, Newbury, Berkshire RG14 1JA **Nebido® is a registered trademark of Bayer Schering Pharma AG (formerly Schering AG). PI revised:** 1 May 2008

References: 1. Nebido Summary of Product Characteristics. **2.** Von Eckardstein S *et al. J Androl* 2002; **23**(3): 419-425. **3.** Gooren LJG and Bunck MCM. *Drugs* 2004; **64**(17): 1861-1891. 8NEBI26a May 2008

Information about adverse reaction reporting in the UK can be found at www.yellowcard.gov.uk Alternatively, adverse reactions can be reported to Bayer plc by email: phdsguk@bayer.co.uk

EDUCATION ISSUE EI

Onwards and upwards?

How can the Biosciences Federation support careers for research bioscientists? Richard Dyer asks for your advice, and for honesty in your aspirations.

I am quite often asked why the Biosciences Federation (BSF) doesn't 'do something' about the career structure for research bioscientists. More often than not, the questioner is thinking only about the public sector, and especially the career structure for postdocs in universities. I usually answer by asking what exactly the questioner thinks the BSF could do - and the response is nearly always rather vague.

Action can only follow an analysis of the problem. In many ways, the situation is well understood, but it does require stating. In the public sector, the modern biology that has raised so many expectations is usually conducted by large teams funded by significant amounts of external money. The team may consist of one tenured senior member of the academic staff, perhaps a more junior member of the academic staff, and maybe a dozen people on fixed term contracts. In most institutions there will be few, if any, opportunities for the short term staff to join the faculty.

However, they may not all wish to become university academics. Most may be postdocs, but they will have a range of career aspirations. Some postdocs will have a predominantly technical role. They fill positions once occupied by staff that had completed vocational training (perhaps culminating in an HNC), and who became treasured technicians with a tenured post. These positions have largely disappeared, taking with them stability in essential expertise. Sometimes, probably too often, promising areas of research are closed down because a postdoc leaves and his or her critical skills cannot be replaced.

'SOME POSTDOCS HAVE A PREDOMINANTLY TECHNICAL ROLE, FILLING POSITIONS ONCE OCCUPIED BY TREASURED TECHNICIANS WITH A TENURED POST. SOME MAY WANT NOTHING MORE THAN A "FIRST LIEUTENANT" ROLE. SOME ARE TRULY DRIVEN BY THEIR RESEARCH, AND IDENTIFY THE ROUTE FOR A RESEARCH CAREER.'

Other postdocs do not aspire to become team leaders. They have seen the pressure that arises when teams are maintained on grants and want a different 'work-life balance'. Although they may want nothing more than a 'first lieutenant' role, many in this cohort are truly excellent scientists. When I was in Bristol, there were tenured university posts of Research Associate and Senior Research Associate. These positions also have largely disappeared.

Finally, some postdocs are truly driven by their research, and strongly promote their work at meetings and elsewhere. They are conscious of citation metrics and identify the route for a research career. Many of this small cohort succeed.

All of this is well known. I write about it briefly not to indicate a yearning for a golden age (which it was not!), but to emphasise that there are different career paths in research for public sector bioscientists, and that separate structures are needed for each. But that is only the beginning, we also need honesty.

How many group leaders really state explicitly that a postdoc is in effect a technician? How many think that their responsibility is discharged by finding another postdoc position for someone who would be better off doing something else - perhaps running a pub?! How many are truly delighted when the ambitious, successful postdoc begins to overshadow them? How many suggest that their postdocs should join a contract research organisation and not think about being an international star? How many acknowledge openly that the biosciences cannot continually expand and therefore not all postdocs will get jobs in the area?

So what does 'do something about careers' actually mean? Certainly, I believe it is possible to 'do something'. Whilst at Babraham, we created two career paths for postdocs: one for potential team leaders and one for team players. Entry to both paths was very competitive.

The potential team leaders were funded by the Institute for 2 years and had to get a significant grant within this time - preferably a prestigious personal fellowship. Astonishingly, virtually all were successful. There was no promise of a tenured post but all became very much better equipped to find one. The team players had to have the requisite generic skills and the ability to refresh them. They also had to be excellent scientists. This very successfully opened a much needed career path for some and provided stability in the essential expertise that the organisation needed. But, of course, this cost money and is not something that many other organisations were/are prepared to do.

Let us focus on the last sentence for a moment. Babraham is not, and never has been, cash-rich. The Institute decided to reduce the scope of its activities in order to improve the scale. The issue of 'scale and scope' is not systematically addressed in this country. Universities do not have to teach all subjects, or indeed undertake research in any. Some universities do not hesitate to reorganise schools and close subject areas in order to improve the structure and financial strength of the organisation. Perhaps the argument should be made more strongly that human capital is the greatest asset of all and that 'scale and scope' issues apply very strongly to staff at all levels.

So what can the BSF do? Currently we are engaged in working with others on identifying skills shortages - both current and anticipated, both vocational and generic. This work holds promise of important outcomes. But I would be delighted if we could also look at the career question in a potentially constructive way in order to make generic recommendations. Please write to me (members@endocrinology.org) if you have a view about the constructive way forward.

RICHARD DYER

Society members respond...

Two members of the Society's Science Committee express their views on Richard Dyer's perspective on research careers.

▶ When the email arrives from the grant-giving body to say 'we regret that we are unable to fund...' it's bad for the researcher, but for the potential postdoc this is a real problem. The current success rate for grants of around 20% makes life as a postdoc somewhat hazardous. On one hand, moving on or taking up different options can be fun. But, unlike those with other professions (medicine, veterinary medicine, nursing, pharmacy), there is no fall-back position and the lack of the next postdoc fellowship is a real hardship, especially if mortgages and children need support.

'We are looking at several options within the Society to support postdoc's career choices, not only in science but allied opportunities.'

Richard Dyer responds to an enquiry I made on behalf of the Society's Science Committee, regarding the issue of a 'career track' for scientists, which is now exercising our minds. There is little point in training numerous PhD students and postdocs if we do not look to their future as well. We should not raise the alarm too much, because the best ones will almost always succeed, but sometimes there are phases when the future is uncertain.

On a small scale, your Science Committee has begun the Small Grants Programme, to provide some support in the form of interim grants. More importantly, we are now starting to address the issues laid out eloquently both in Richard Dyer's thoughts and Rob Fowkes' response (see right). We are looking at several options within the Society to support postdoc's career choices, not only in science but allied opportunities. We want to support you, as you are the future of endocrinology.

At least there is more recognition of a looming potential enormous problem, with the lack of permanent positions in universities and other research organisations. We hope that the launch by Research Councils UK of a 'new concordat to support the career development of researchers, which sets out the expectations and responsibilities of researchers, their managers, employers and funders' (www.researchconcordat.ac.uk) will prove fruitful. In the meantime, we must look after you as Society members as much as we can, to foster your career progression. Please contact us (members@endocrinology.org) on the Science Committee with your thoughts.

ALAN MCNEILLY

▶ I recognise most of what Dr Dyer says as being the unfortunate experience of UK biomedical researchers (and scientists in general), but I don't see how he can be unclear how the BSF could address the lack of career structure for basic scientists.

Having correctly identified the loss of technical posts and research specialists as a major factor contributing to the current situation, I would have thought that addressing this loss would be a fine starting point for BSF activities. In addition, the ridiculous Government target for 50% of the UK population to pass through the university system only dilutes the skills pool at the level of postgrad and postdoc researchers. This is not intended as an elitist rant or, at the other end of the scale, a plea for the reward of mediocrity, but destroying tiers of the research community by eliminating these highly skilled positions has not been without consequences.

Dr Dyer is on the money when he says that there is a lack of honesty in our institutes, as I'm sure many of us are guilty of not being sufficiently frank with individuals when it comes to discussing with them their realistic prospects of an 'academic' career. The cohort of individuals that he refers to as being truly driven by their research and desire to achieve in their chosen career is probably still, in the main, the cohort that makes it as independent senior fellows or as research-active university lecturers. But I fear this cohort will become proportionally smaller as the system becomes 'flooded' with more graduates.

'Not all graduates can be expected to have productive research careers, and this is an important stage at which the BSF could be involved, promoting awareness of science-related careers that do not require a postgraduate degree.'

Not all these graduates can be expected to proceed to have productive research careers, and this is an important stage at which the BSF could also be involved, promoting awareness of science-related careers that do not require a postgraduate degree. In terms of a generic skills shortage in UK science, I'm not convinced that there actually is one, just a dilution of the skills pool, making it harder to identify the most appropriate/gifted individuals.

I think our own contribution as a Society in dealing with the current situation is being addressed by Professor McNeilly's suggestion of providing greater careers guidance to our members and making them aware of the wide range of jobs for which they are more than qualified. Realistically, neither the Society nor the BSF is going to successfully lobby Government to recreate thousands of technical support posts or create research staff specialist positions, so we must be pragmatic in aiming to improve all options for our members.

ROB FOWKES

EDUCATION ISSUE EI

Back to school for peer-review

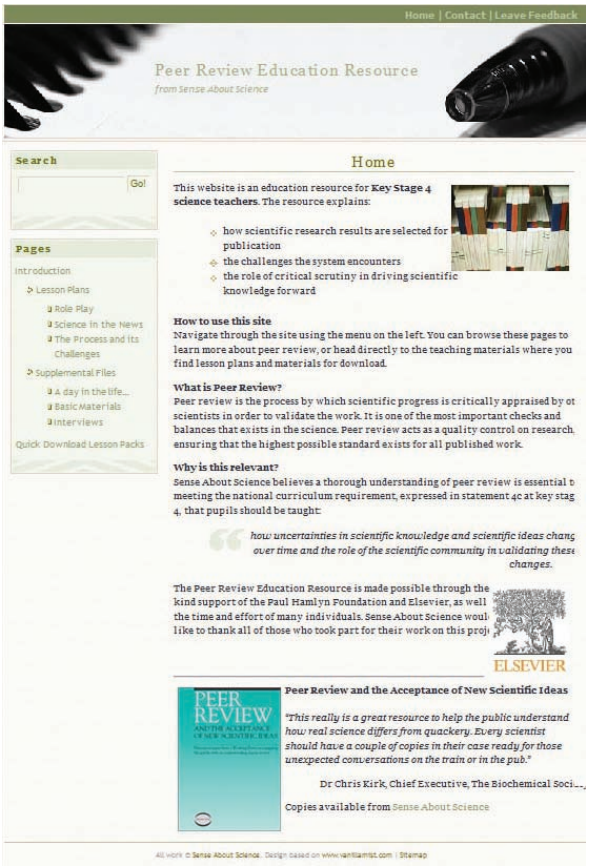
An understanding of peer-review is crucial in helping the public critically appraise science stories that hit the headlines. That's why Sense About Science is making sure it's covered in the classroom.

Mention peer-review to a group of scientists, and you will probably spark a conversation about how on earth a particular article got accepted into last month's issue of some journal, or a story about how unfair a referee was in the appraisal of their paper. If asked to not be so negative, they would probably accept that peer-review is overall quite a good system and one that tries to minimise instances of unfairness. But often scientists haven't considered the importance of peer-review beyond the scientific world, and for the general public.

Sense About Science is a registered UK charity founded in 2002 to promote good science and regard for evidence in public discussion of topical issues, like vaccines, stem cell research, exposure to chemicals, genetic testing and radiation. In 2005, we published a leaflet called *I don't know what to believe: making sense of science stories* (www.senseaboutscience.org.uk/pdf/ShortPeerReviewGuide.pdf). This explains the peer-review process as a tool to evaluate research claims in the media and online, and has been hugely popular, with over 150 000 copies disseminated worldwide.

The guide's release generated many requests from primary and secondary school teachers, and others involved in science education, who wanted to use the guide in the classroom with their students. In fact, the National Curriculum encourages pupils at Key Stage 4 to consider what scientific evidence is, the scientific method and the impact that scientific ideas might have on society. Sense About Science believes that an understanding of peer-review is essential to meeting this requirement. Students need to understand that the scientific knowledge we regard as fact, such as the earth revolving around the sun, is actually the result of many years of academic argument and gathering of evidence. In this way, they can be encouraged to consider new research critically and to consider its evidence base, not just to believe new theories because they appear to 'make sense'. This knowledge will enable them to handle data and evidence maturely and with discrimination, which will help them negotiate the world better - and not only if they choose to become scientists.

The requests from teachers led Sense About Science to realise that the first time most students encounter peer-review is at university (and only then if they study science). As a result, we decided to create an online peer-review education resource to help teachers devise lessons about peer-review. The online resource explains the nuts and bolts of the peer-review process: how scientific research results are selected for publication and the importance of critical scrutiny in driving scientific knowledge forward. It also includes a 'a day in the life' story of a journal editor and interviews with editors and scientists. Students can learn how to assess media stories, especially on controversial issues such as MMR or GM food. Finally, there are practical exercises where students



are asked to critically evaluate one another's work, by pretending to be editors, authors or reviewers of papers, in a role-playing scenario.

From fraudulent results to challenges to the system, the resource will confront the difficult questions head-on, and hopefully lead to stimulating classroom discussions. Sense About Science has worked with scientists, journal editors, teachers and academics involved in education and curriculum development to make it as useful and as relevant as possible. You can find the online peer-review education resource at www.senseaboutscience.net.

As scientists, it is important for us to realise that the public, by and large, think that peer-review is both interesting and useful. For example, it can be helpful when deciding whether to buy some very expensive drug that promises to be a miracle cure or whether wi-fi should be used in schools. Getting children to become familiar with peer-review and the scientific method is a good start that will create a more empowered society, but scientists can also help by explaining the status of their research and the process they go through when discussing it in public. Peer-review and the scientific method shouldn't be only talked about within the four walls of a lab; they are useful tools that need to be explained and discussed in public debates about science. We hope that scientists can step up to the challenge.

LEONOR SIERRA, SENSE ABOUT SCIENCE

Straight-talking science

Rebecca Sowden has a passion for exciting people about science. So what drives her and what are the secrets of her success? We learn what makes her tick.

As the general public become increasingly involved in controversial debates such as stem cell research and GM crops, there has never been a better time for science communicators to step into the arena. Cue Dr Rebecca Sowden, a talented scientist, with a genuine drive to make science accessible to all.

Rebecca graduated in chemistry from the University of St Andrews in 1999 and then gained a PhD in bioinorganic chemistry from the University of Oxford. After joining a research team at the University of Edinburgh, she soon became involved with the University's outreach activities and high profile events at the Edinburgh Science Festival. A move to the University of Strathclyde led to her promoting practical science amongst school children in the surrounding area.

Audiences at her Glasgow Science Centre and Researchers in Residence (www.researchersinresidence.ac.uk) workshops have witnessed Rebecca extract DNA from bananas and 'make the perfect poo' (you are spared the details). In 2007, Rebecca received the Biosciences Federation (BSF) Science Communication Award, which recognises research-active scientists who make a consistent and outstanding contribution to science communication. In the same year, Rebecca was invited to a reception at 10 Downing Street, hosted by Tony Blair, in recognition of her contribution to the future of UK science.

Today Rebecca continues her science communication activities, on top of her full-time post as a chemistry teacher at the Glasgow Academy. So what motivates Rebecca to devote so much free time to communicating science, and what advice does she have for fellow scientists who want to follow in her footsteps?

Rebecca, what made you become a science communicator, and what's important in science communication?

Everything I've ever done is because I enjoy presenting science, and believe it's essential to address the negative image that science, especially academic science, often has. It's always been important to me to step back and simplify the science, so that people can understand it. I think researchers often have a real problem doing this, and almost give the impression that they don't want anyone less able than themselves to understand it. The point isn't to ensure audiences can do the research themselves, but to ensure that they're more interested and knowledgeable than they were to start with. It's all relative.

It's also vital to find an angle that will be relevant to, and capture, your audience's interest, and not expect them to be interested just because it is cutting-edge research.

What have been your most enjoyable projects?

I've really enjoyed taking science into schools and engaging not only with children but also with teachers. Last year, in collaboration with East Dunbartonshire Council, I helped organise a 'Supermarket Science Soiree' Continued Professional Development event for primary and secondary teachers. This emphasised how easy it is to perform biology experiments in the classroom using everyday materials. It led to several spin-off workshops and valuable links with teachers and schools in the local area.

What barriers have you found to your communication activities?

Outreach work is very much a voluntary area, most of which I've done in my free time. It's currently not well-recognised in academia, with the focus being solely on funding and publications, but moves are apparently underway to change the Research Assessment Exercise (www.rae.ac.uk) and encourage more academics to communicate their research.

In the past year you've moved from academia into teaching; how and why did you do this?

My move into teaching took me rather by surprise! However, since my PhD I've been active in taking undergraduate tutorials and supervising students in the lab, so maybe it's not such a surprising change after all. In Edinburgh I ran an undergraduate teaching lab and at Strathclyde gave undergraduate lectures, neither of which are usual post-doc duties. I've enjoyed it, but wouldn't have wanted to go straight into teaching from my degree as I'd lack life and research experiences which make me a better educator.

My enthusiasm for interactive science is something I want to encourage in fellow teachers. I hope that by being a teacher I will better understand the challenges they face and gain their respect.

How do you feel about the accolades you've received over the past 5 years?

What could be better than receiving an award for something that you enjoy doing?! I was delighted to win the 2007 BSF Science Communication Award. The meeting gave me a great opportunity to network with sponsors of the award, Pfizer, and BSF members. As a result, I was asked to give a presentation to the Education Division of the Society for General Microbiology at their spring conference in Edinburgh. I've also been invited to present at the Pfizer Science Jamboree in June.

What advice do you have for researchers looking to communicate science to the wider community?

My top tips are to keep going when things don't go quite as planned. I've been turned down as a NOISEmaker (New Outlooks in Science and Engineering: a campaign to raise awareness of science and engineering among young people, www.noisemakers.org.uk) and also for a Saturday job at the Glasgow Science Centre, but despite this have organised very successful workshops at the latter and presented at the Cheltenham Science Festival. You need to be enthusiastic. I've always found nature to be a source of inspiration. It's so efficient: just look at the genetic code - what a fantastic example! I think it's important to enjoy what you are communicating and to have fun. From my experience, the audience is more likely to learn in this environment.

EDUCATION ISSUE EI

Does my bum look big? Or is it my jeans?

The Society's 2008 undergraduate essay competition again attracted entries from a wide range of undergraduate students, medics, vets and scientists, hailing from universities with major endocrine centres and those less well-known for endocrinology. The high standard made it difficult to choose one winner. We are delighted to publish the winning essay, by Marianne Neary, in abridged form here (see the full version at www.endocrinology.org/grants/prize_undergraduateessay/2008undergraduateessay.html). Congratulations are also due to the runners-up: Louise Hunter, Meera Ladwa, Matthew Rutherford and Neil Singh.

Yes, we've all been there. We steal a surreptitious glance in the shop window. We've de-tagged that photo, you know, the one with the double chins. We've dunked the odd biscuit in our tea, or nicked the last cherry bun from the bread bin. But didn't we remark 'Just lose weight!' to the large lady on the Oprah Winfrey Show last week?

Most of us dream of the day when we waltz past that same shop window, flick our hair and see the new skinny-self gliding past. We try. We mostly fail.

The bottom line is - our national bum-print is big and set to get bigger. In reality, however, our derrières are the least of our worries, with obesity being one of the largest factors contributing to the big killers: heart disease, stroke and cancer.

So what's going on? The thing is, no one *really* understands the control of appetite: why some people are obese and why it's so hard to lose weight. We do know that hormones have a lot to say for themselves. Indeed, the sheer plethora of gut hormones would make any endocrinologist want to dunk that biscuit in their tea.

To embrace the subject of obesity from an endocrine standpoint is no mean feat. So let me examine what the trendy area of genetics says about obesity, and how this relates to the world of hormones.

So, is it my *genes*? Well, partly. Obesity only rarely displays classical Mendelian inheritance. The most significant are mutations in melanocortin receptor 4 that abolish the appetite-suppressing effects of MSH. If obesity is defined as a BMI of above 30, then only 1% of obesity can be attributed to this. Despite the scarcity of these monogenic disorders, they have been key in elucidating much of our knowledge of the hormonal control of appetite, for instance leptin.

So monogenic disorders do not explain why we commonly see obesity running in families. Our search for genetic risk factors is confounded by the fact that families share much of their environment, making genetic and environmental causality hard to distinguish.

Twins can be assumed to be brought up similarly in terms of food and physical activity, so effects of differential environment can be ruled out. Research on over 5000 twin pairs showed the greater your genetic similarity to an obese family member, the more likely you are to become obese. Indeed, this work attributed a whopping 77% of BMI and waist-line difference to our genes.

Last year, the first polymorphism associated with a substantial risk of obesity was identified: the FTO gene (fat mass and obesity associated gene). Its function is still unclear. Maybe something to do with hormonal control of appetite, as the monogenic conditions mostly are? Maybe an affect on cellular metabolism? Watch this space.

And it's not just the heritable DNA sequence that's under scrutiny, but its *expression* too. Chemical modifications, like methylation, affect the 3D structure of DNA, altering the access of transcriptional machinery to particular genes. So-called '*epi*genetics' is the new buzzword. Before we are born, it is suggested our genes are superficially modified, fine-tuning our physiology for our future environment. Hormones seem to be key mediators in this signalling.

Many remain to be convinced by the significance of this in the later development of obesity, but it's no novel concept. In the desert locust, wing phenotype is determined during the larval stage by pheromones emitted by the mother, according to the population density. A wing geared to migration would enable a locust to escape overcrowding more easily, should that still be the case when the larva reaches adulthood. The term predictive adaptive response (PAR) has been coined. It's a clever tool enabling us to overcome temporary environmental blips, without permanently altering the germline.

Now, use this in the context of food availability. It's no surprise that women pregnant during the Dutch famine produced offspring with a high incidence of obesity. The intrauterine environment predicted scarcity of food, but the youngsters' actual environment was one of plenty. So why doesn't a maternal environment of plenty tune a child's genes for over-eating? Indeed, it seems to do the opposite: large babies are more likely to become large adults. It's been suggested that hyperinsulinaemia, perinatally and also in early infancy, may programme the later development of obesity and diabetes. Hyperleptinism and hypercortisolism may also cause similar mal-programming.

But though our genes may make us more susceptible to gaining weight, it doesn't mean it's inevitable. It's suggested that we are *all* predisposed to becoming overweight and have to make a *positive* effort to opt out of obesity - just some more than others.

We only have to look at the physiological roles of the recognised appetite hormones to see this. Even leptin, whose primary role appears at first to prevent us from overeating, is actually more important in a starvation response as its levels plummet. Only in the last 50 years, in developed societies, has food become plentiful. Humans have been on an evolutionary treadmill of survival, endocrinologically programming us to eat as much we can, when we can. We cannot reverse millions of years in a decade. This opting out has proved, and is going, to be difficult.

So, it looks like we're back to square one for now. And back on that treadmill. Now, where did I put my copy of *Woman's Weekly*…?

MARIANNE NEARY

Learning the language of the lab

EDUCATION ISSUE EI

Rudolf Lequin's mission is to ensure health professionals aren't left behind in communicating with colleagues in laboratory medicine.

In the age of global travel, the concept of patients holding electronic cards that contain their coded medical data brings with it significant benefits. Such data, including procedures performed and laboratory results, must be in formats that are unequivocal, and understood by medical professionals worldwide.

Indeed, medical professionals already communicate with medical laboratories by ordering diagnostic tests and receiving results, to support (or confound) tentative diagnoses. So is it important for those professionals, including endocrinologists, to be familiar with the exact terminology used in laboratory medicine? Undoubtedly, yes.

The science of measurement is termed metrology, and a vocabulary of terms and their definitions has been developed called the 'International Vocabulary of Basic and General Terms in Metrology' - also known as VIM (www.bipm.org). VIM and many other publications of the International Organization for Standardization (ISO) and the European Committee for Standardization (CEN) apply to laboratory medicine and must be understood by those who communicate with labs.

So consider the term measurand, defined in VIM as the 'quantity intended to be measured'. ISO gives the 'structure' (or formula) for a measurand as *System - Component; kind-of-quantity* = (result) *Unit*.

Filling in this formula gives: *System*: whole blood, plasma, serum, urine; *Component*: e.g. glucose, total calcium; *Kind-of-quantity*: substance concentration; (result) *Unit* a numerical value obtained after measurement plus the unit system used: e.g. mmol/l or (fraction) mol/l.

So 'serum calcium-total, substance concentration X mmol/l' or 'plasma glucose substance concentration X mmol/l' are unambiguously defined measurands. So far, things are fairly straightforward.

The components, calcium and glucose, are chemically fully defined and single entities. They are clinically of great importance, as they constitute what is called 'routine clinical chemistry'. For each, a reference measurement procedure of metrologically higher order is available, e.g. mass spectrometric technique. There are only about 100 such well-defined 'components' in laboratory medicine.

This group of quantities is collectively called SI-traceable, because through the reference measurement procedure and/or through a reference (material) of metrologically the highest order, the measurement result can be traced to SI units. Put simply, the concentration can be expressed in terms of (fraction) mol/l, 'mol' being an accepted SI unit (EN ISO 17511: 2003).

In contrast to this small group, there are hundreds of quantities (in principle all (glyco)proteins/peptides) whose concentrations are measured by immunoassay and its variants. Their measurement results are not SI-traceable, but are expressed in arbitrary units, like International Units (WHO) or mass units of a preparation used by a manufacturer in its commercially available measurement system (e.g. prostate specific antigen). This group is termed non-SI-traceable. Endocrinologists are fully familiar with measurement results of glycoprotein hormones, like hCG, LH, FSH and TSH, expressed in terms of IU/l.

Measurement of hCG in blood or urine is clinically important. The measurand for 'serum hCG' according to the ISO 'formula' is described as 'Serum, hCG, substance concentration IU/l' or that for 'urine hCG' as 'Urine, hCG, substance concentration IU/l'. These two measurands not only differ in that the selected systems are different, but also in their component. Is hCG a single entity? Not at all! The intact hormone consists of two subunits (α and β). The following derivative products have been identified: α subunit, β subunit, nicked forms, and core fragment of hCGβ. Almost all these fragments are glycosylated.

It is presumed that these fragments are further metabolised by the liver and the kidneys. As 'hCG' concentrations are measured by immunochemical techniques, it is the selectivity of the antibodies in the measurement systems that governs which forms are 'measured'.

Knowledge of the properties of 'hCG' is based on the urinary forms, as the preparations are sourced from pregnant women's urine. To complicate matters further, there are now indications that glycosylation influences immunoreactivity. It can be safely assumed that the mixture of 'hCG' forms in serum differs from that in urine. However, the 'serum' forms of 'hCG' are unknown to us, as are the forms produced by the placenta, the organ of origin.

So (a) we are unfamiliar with the forms present in a patient's serum sample; (b) we are also unfamiliar with all forms present in a urine sample; (c) given (a) and (b) we do not know what is 'measured' by the antibodies. Being scientifically honest, we should conclude that the two measurands are different because the system is different, and because the precise nature of the component (or rather components) in each measurand is analytically unknown to us.

'Is it important for endocrinologists to be familiar with the exact terminology? Undoubtedly, yes.'

We know even less about the hundreds of other non-SI traceable quantities, but you shouldn't conclude that these immunoassay results are worthless. The measurement of a non-SI traceable quantity may be compared with 'measuring' the total surface of a football field with 22 players running around, while investigation and clinical validation may show that we should only 'measure' the goalie's concentration in a particular disease.

Only one term, 'measurand', has been discussed here, and certainly not exhaustively. Other terms from VIM and ISO documents require equal attention, e.g. accuracy, bias, trueness, interferents, uncertainty of measurement, etc. So I call upon medical professionals to sharpen their awareness and to teach medical students the importance of terminology in unambiguous communication, to avoid becoming disconnected now and in the future.

RUDOLF M LEQUIN, R.M.LEQUIN@PLANET.NL

EDUCATION ISSUE EI

The value of grants

Three recent recipients of Society financial support gained excellent educational rewards from their grants, as they relate here.

The trainee at Society BES 2008

'Why am *I* actually here?' This daunting question faced me as I arrived in Harrogate, the recipient of one of the free places provided by the Society for those yet to choose endocrinology as their specialty. As a fifth year medical student, my supervisor had put forward my name, after seeing the taste I developed for endocrinology following my elective placement at St Bartholomew's Hospital.

I could have felt out of place, with no presentation or accompanying clinical department. Instead, I began talking to people, asking questions, understanding who the hundreds of delegates were and how they contribute to endocrinology. I started to appreciate the different endocrine niches and experiences - both around the country and internationally - and I began asking myself how I could fit in.

In return, people asked me about *my* career thoughts, why *I* liked endocrinology and how, as a student, I had managed to see beyond insulin and thyroxine. This was when I realised the point of these free places. Much as the well-respected professors contribute enormously to the field, it is new blood and ideas which keep things moving from the other end. It is unusual, but greatly encouraging, to realise your own potential significance as a student!

Some presentations had relevance for me, while others were more specialised or flew right over my head. The Young Endocrinologists session gave an insight into a career in the field; it brought home the fact that a doctor's life really does not need to be a homogenous conveyor belt, despite government initiatives. Overall, I learnt some fascinating medicine and began to understand the realities of a specialty career. I gained confidence by conversing with people from a range of scientific backgrounds, with whom I would not usually mix as a clinical undergraduate.

Most importantly, I recognise the breadth of endocrinology, and feel much more equipped to decide whether it's the field for me. I also understand much better the directions I need to take if indeed I do decide upon it. Many thanks for this opportunity!

ANISA J NASIR

The Clinical Department Visit

The grant you gave me to visit a clinical department allowed me to spend time in one of the best endocrine units in Europe, and to be involved with them for 5 months of my training in endocrinology. I gained great experience of clinical practice from being involved in their everyday work. Moreover, I was able to learn different approaches to endocrine problems, which will enrich my professional experience.

I also conducted research in two distinct areas. The first was acromegaly, where I studied predictor factors in response to medical therapy. The corresponding results will be presented at the next Society BES meeting and at the European Congress of Endocrinology. At the moment we are preparing the paper for publication.

Secondly, I worked on the effects of Cushing's syndrome on body composition, making a detailed review, which taught me a great deal about this area. It will be published in the journal *Pituitary*.

EVA FERNANDEZ RODRIGUEZ

The Lab Visit

Evidence that C-type natriuretic peptide (CNP) activation of the guanylyl cyclase-B (GC-B) receptor results in phosphorylation of MAPK family proteins supports the idea that natriuretic peptide receptors signal through alternative non-cGMP dependent pathways.

I received my Lab Visit Grant to investigate the locality of the GC-B receptor within cellular membrane compartments, and to determine whether the GC-B receptor localises to membrane rafts and potentially forms signalling complexes with MAPK family proteins in GH3 somatotroph and αT3-1 gonadotroph cell lines. The resulting data could clarify key mechanisms of protein-protein interaction between receptor and downstream MAPK family proteins.

Initial studies at Cornell University with Professor Mark Roberson's laboratory enabled me to learn the 2-day technical protocol for cellular fractionation using sucrose density gradients and ultra-centrifugation methodology for the generation of low density to high density fractions from whole cell lysates. We also conducted cholesterol depletion and repletion studies, using cyclodextrin to deplete cells of cholesterol, and water-soluble cholesterol to replete cellular cholesterol, to complement membrane raft fractionation studies.

Preliminary data suggest that the GC-B receptor is localised to low density cellular fractions in αT3-1 cells, implying a membrane raft locality in this cell type. Similar experiments conducted in GH3 cells suggest that refinement of cell lysis and homogenisation techniques would provide a clearer distinction between low density and higher density membrane fractions. Current methodology suggests that fractionation of the different density fractions is incomplete. Work is on-going to optimise this procedure in GH3 cells.

Pilot studies showed that depletion of cholesterol from cells with 2% cyclodextrin for 25 minutes led to a decrease of about 50% in CNP- and ANP-stimulated cGMP accumulation in GH3 cells. However, cholesterol depletion over the same period failed to alter the ability of CNP/GC-B receptor to stimulate ERK phosphorylation in GH3 cells. Further studies into the effects of cholesterol depletion/repletion on signalling mechanisms are underway.

These studies have continued since my return to the UK, and data produced using these protocols and the samples generated at Cornell University are being used as pilot data for a project grant application submitted to the BBSRC. Dr Rob Fowkes is the primary applicant, with Professor Mark Roberson an active collaborator and myself as a recognised researcher.

The Society's funding has enabled me to learn new techniques, and also to establish important links with a leading scientist in the field of GnRH and membrane raft signalling in pituitary gonadotroph cells. This is excellent from a career development perspective, as it has provided me with a potential collaborator and mentor for future fellowship and young researcher grant applications. This collaboration will also benefit my current institution financially if the BBSRC project grant application is successful.

Strategy: time for review
...but no plans to pick a pocket or two!

Rachel Evans takes a look at the Society's strategy, in a changing financial climate.

The Society's strategic plan was developed in 2005-2006, in a time of plenty when we had more money in our reserves than we needed. This enabled us to make more ambitious plans for supporting endocrinology, both by supporting endocrinologists and by improving public understanding.

We established several priorities for 2006-2011:

- Attracting good young scientists, doctors and nurses to endocrinology and the Society, and retaining them
- Increasing the Society's influence, and identifying areas on which to focus, like career structures, research funding and specific subspecialties
- Improving patient and public understanding of endocrinology and access to information

We hope you've noticed a burst of activity over the last 2 years in implementing this strategy. This has included extension of our grants and awards to include the small grant programme, the summer studentship scheme, the undergraduate achievement award scheme, the undergraduate essay prize and increased grants to patient support groups. The Society BES is now a revamped and enlarged, single new annual data meeting, at which we offer a number of free places for trainee scientists, clinicians and nurses who have not yet chosen endocrinology as their specialty.

We have been highly successful at engaging interest at our public sessions 'How hormones rule our lives' at the 2008 Edinburgh Science Festival and 'Obesity: fat of the land, or land of the fat?, at the BA Festival of Science in Liverpool. Our redesigned website is an excellent communication channel, and includes enhanced careers support, which we also provide via Biosciences Federation careers events. In addition, we have also taken over many of the activities formerly supported by the Clinical Endocrinology Trust.

The Officers' decision last year to conduct a mid-cycle review in spring 2008 proved timely, coinciding with a fairly severe downturn in the stock market and a less ebullient trading year for BioScientifica. As the chart shows, by 2010, this could push us into a position where our reserves are not enough to meet our needs. We hope that this is a temporary situation, but it will not become clearer until we have the final 2008 results later this year.

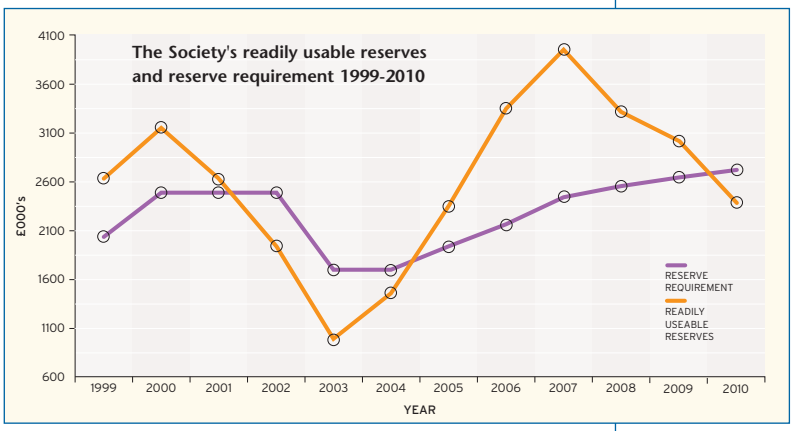
Against this backdrop, April's strategy meeting led to several recommendations which Council accepted in June. The key strategic direction outlined above was still largely felt to be correct. Some small changes were made to the Society's aims and objectives, which now read:

- To advance scientific and clinical education and research in endocrinology for the public benefit
- To educate and inform the public on all aspects of endocrinology
- To attract good young scientists, doctors and nurses into endocrinology and to retain them, to improve science and medicine for the public benefit
- To raise the profile and be the voice of endocrinology in the UK
- To promote and support endocrinology worldwide and to foster a sense of community, including working in collaboration with other international organisations

The following main additional proposals were accepted.

Research

- To continue the current grants programme, increasing funding when possible
- To work with the Biosciences Federation to promote better career structures for scientists



Clinical

- To develop guidelines on rare diseases when funds allow
- To extend the interdepartmental peer-review process into osteoporosis and metabolic bone disease, in liaison with the other relevant specialist societies
- To promote academic career tracks for clinicians

Nurses

- To develop the annual nurse course into a major national conference dealing with all levels of educational requirement
- To investigate setting up an annual nursing publication
- To create a statement of good practice for the professional development of nurses within clinics

Public understanding of endocrinology

- To set up a Public Engagement Committee
- To develop a public website
- To increase our work at science festivals and other public engagement opportunities
- To increase our work with the media
- To increase our liaison with, and support of, patient support groups
- To support members who would like to participate in schools education

Of course, many of these additional activities require funding, but we can undertake planning and assessment now, and be ready to move once further funding is released. Watch this space for updates on the strategic plan and the finances. For further information, contact me at the Bristol office (rachel.evans@endocrinology.org).

RACHEL EVANS

Mozart plays his way into the pituitary

Hotspur 'orchestrates' a new therapy for endocrine disease.

I decided to be a doctor when I was 15 or 16 years of age: an unknowing age, an age at which I was not even sure where I was up to in puberty, and even now remain unconvinced that the process is completed.

I was lucky, however, for as soon as I entered medical school, I fell in love with medicine. In return, medicine has proved a greedy and demanding lover, not least because of the sheer scale and depth of the subject. It is all-encompassing, leaving little time for other pursuits. There is so much to know, and applying former US Defense Secretary Rumsfeld's 'types of knowing' to medicine provides more alarm than reassurance: 'There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we now know we don't know. But there are also unknown unknowns. These are things we do not know we don't know.'

Well in 'Rumsfeld-speak' I was very certain of one known known, my enjoyment of the music of Mozart, but the known unknown was why. That was until the publication of the December 2007 issue of *Critical Care Medicine*, in which Conrad *et al.* contributed an article entitled 'Overture for growth hormone; requiem for interleukin-6?'. These authors conducted a randomised study in ten critically ill patients to identify mechanisms of music-induced relaxation, using a special selection of slow movements of Mozart's piano sonatas. Compared with controls, they found that music significantly reduced the amount of sedative drugs needed to achieve a comparable degree of sedation. Simultaneously among those receiving the musical intervention, plasma concentrations of growth hormone increased, whereas those of interleukin-6 and adrenaline decreased.

This surprising and unexpected observation stimulates an enormous number of questions. Do Bach, Beethoven, Chopin and Brahms provoke the same type of growth hormone response and to the same degree? Where does this leave Roy Orbison? Conrad suggested that one reason for Mozart's more exuberant provocation of growth hormone release might be his use of distinctive phrases that are fairly short, often only four or even two measures long, which are then repeated to build larger sections.

What happens to patients with growth hormone deficiency (GHD)? Do those who are Mozart lovers pre-hormone deficiency lose their enjoyment when GHD is acquired? Is this another, as yet unreported, biological endpoint of GHD in adult life? Is the state of congenital GHD incompatible with a love of Mozart?

Most children undergoing investigation of GH status are submitted to two tests of GH release, the most commonly used being the insulin tolerance test (ITT) and arginine stimulation. In the KIGS pharmacosurveillance database over a 20-year period, 87 061 GH tests were carried out and the combination of tests ran to several hundred. Could Mozart replace the ITT as a dynamic test of GH release in a child or adult being investigated for a putative diagnosis of GHD?

What about the positive potential of Mozart as therapy for short stature? Short term studies could be conducted utilising a knemometer, which would allow measurement of daily growth in a normal short child exposed to Mozart for several hours every day. On the negative side, the discovery of Mozart on the iPod of an athlete at the London Olympics might be construed as an unfair performance enhancer.

Finally, on a more sombre note, it is important to remember that, in a variety of animal models, the GHD animal outlives the animal of normal GH status. Mozart died early at the age of 35 years, and there are many conflicting theories about the cause of his early death. Is it conceivable that he died at the hands of his own music? Day after day listening, thinking, cogitating, ruminating over his own music may have induced a persistent endogenous state of GH excess, thereby leading to his early demise. Mozart lived for his music but ultimately could it have been his music that killed him?

'HOTSPUR'

International Scholars Programme

The Society is taking part in this US Endocrine Society initiative to link promising young investigators with positions at leading institutions outside their home countries. Scholarships of up to 3 years are available.

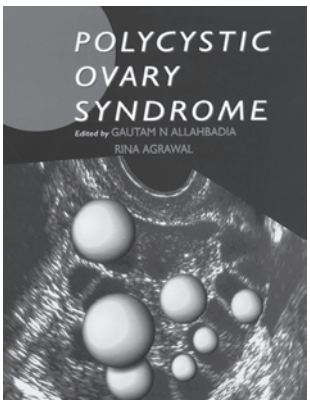
Candidates can be basic or clinician researchers with 2-5 years of research experience following PhD/MD. During the scholarship, the work will be mainly basic laboratory research; any exposure to patients will be as observers. Clinician researchers should have completed their clinical training.

The Awards Committee will select up to two candidates after reviewing applications and conducting interviews. These candidates will then be interviewed by the host institutions they have identified during the US Endocrine Society meeting on 10-13 June 2009.

The application date will be early January with interviews in mid-February 2009. Members will be notified by email when further details are available.

BOOK REVIEW

Polycystic Ovary Syndrome



GN Allahbadia & R Agrawal (Eds), Anshan, 2006, 400pp, £35 (Pbk), ISBN 978-1904798743

The acid test for any publication with an overarching remit, such as this, is 'does it do what it says on the can?' In other words, who will benefit from it and does it succeed in meeting their needs? While the editors make no explicit statements in this regard, Roy Homberg's introduction describes this book as 'a stimulating volume that is truly thought-provoking and comprehensive'.

The problem with any reference book is that, by the very nature of the field, much is outdated. Furthermore, one must decide whether to cherry-pick from a recent review in a reputable journal or to buy a tome that encompasses the broad field.

The book is divided by subheadings, each encompassing one or more chapters, to cover the spectrum of polycystic ovary syndrome. For example, the category 'prevalence and diagnosis' has several chapters associated with it, whilst 'hyperandrogenaemia' is both a subsidiary and a single chapter, which could have been expanded upon. Certainly, the range of authors is impressive to cover the field.

The book starts with the history and origins of PCOS and ticks the important boxes: diagnosis, genetics, pathophysiology, insulin resistance, obesity, hyperandrogenism and the reproductive issues. Many of the chapters are based more on individual practice and thoughts rather than evidence. However, there are some excellent chapters such as those from Diamanti-Kandarakis and Legro, and from Fleming and Sattar. Other chapters do not seem to fulfil their remit, like that by Ortega-Gonzalez and Parra, which is more a research paper than an overview.

There is a lot of detail, emphasis and duplication regarding the insulin-sensitising agents, though few note that these are unlicensed medications that have potential promise in some areas. Some comments on insulin sensitisers have been superseded by updated evidence, like that for metformin versus clomiphene in infertility, thus making the chapter by Biren *et al.* outdated. There are a number of discordant statements made between authors in different chapters. On the topic of insulin sensitisers, for instance, these include whether insulin resistance should be measured and how to screen for diabetes in PCOS. The chapter on obesity is a missed opportunity to discuss diet and lifestyle issues that are key in the management of these patients.

Overall, this is a very pretty book on excellent quality paper that would grace any coffee table. I enjoyed reading it.

But then we must return to the pithy question of who will benefit most from it, or at whom it should be aimed. The people who would enjoy the book most are likely to be those that know the subject already and would, paradoxically, get the least out of it. A senior SpR is likely to be able to pick and choose that which is important, but others may become confused by the individual approaches of different authors.

STEPHEN ATKIN

FUTURE MEETINGS

5th Asia Pacific Paediatric Endocrine Society (APPES) Scientific Meeting
29 October-1 November 2008, Seoul, Korea.
Contact: Hyo Bong Lee, Intercom Convention Services Inc (Tel: +82-2-5683208; Fax: +82-2-5652434; Email: appes2008@intercom.co.kr; Web: www.appes2008seoul.org).

OCDEM and YDF State of the Art Diabetes Course
30-31 October 2008, Oxford, UK.
Contact: Marc Atkin (Email: kinners@doctors.org.uk; Web: www.youngdiabetologists.org/index.php?option=com_content&task=view&id=82&Itemid=1).

2nd World Congress on Controversies in Diabetes, Obesity and Hypertension
30 October-2 November 2008, Barcelona, Spain.
Contact: Congress Secretariat (Email: codhy@codhy.com; Web: www.codhy.com).

Obesity and Cancer
4 November 2008, London, UK.
Contact: M Ruffell, Association for the Study of Obesity, 20 Brook Meadow Close, Woodford Green IG8 9NR, UK (Tel: +44-7799-416444; Email: melanie@aso.org.uk; Web: www.aso.org.uk/portal.aspx?targetportal=37).

Therapeutic Patient Education and the 4th International Dawn Summit
5-8 November 2008, Budapest, Hungary.
Contact: Daniela Morein-Bar, 1-3 Rue du Chantepoulet, PO Box 1726, CH-1211 Geneva, Switzerland (Tel: +41-22-9080488; Fax: +41-22-7322850; Email: tpe2008@kenes.com; Web: www.kenes.com/tpe).

Royal College of Physicians of Edinburgh: Gastroenterology Symposium
7 November 2008, Edinburgh, UK.
Contact: Christina Gray (Email: c.gray@rcpe.ac.uk; Web: www.rcpe.ac.uk/education/events/gastro-nov-08.php).

ICE 2008
8-12 November 2008, Rio de Janeiro, Brazil.
Contact: Julia Aquino, 13th International Congress of Endocrinology 2008 (Email: ice2008@jz.com.br; Web: www.ice2008rio.com.br).

American Society for Reproductive Medicine
8-12 November 2008, San Francisco, CA, USA.
Contact: American Society for Reproductive Medicine, 1209 Montgomery Highway, Birmingham, AL 35216-2809, USA (Tel: +1-205-9785000; Fax: +1-205-9785005; Email: asrm@asrm.org; Web: www.asrm.org/Professionals/Meetings/annualmeeting.html).

16th Annual Congress of the European Society of Gene and Cell Therapy
13-16 November 2008, Brügge, Belgium.
Contact: Congrex Sweden AB (Tel: +46-8-4596600; Email: esgct@congrex.com; Web: www.esgct.org).

British Society of Immunology Congress 2008
17-21 November 2008, Glasgow, UK.
Contact: The British Society for Immunology, Vintage House, 37 Albert Embankment, London SE1 7TL, UK (Tel: +44-20-30319800; Fax: +44-20-75822882; Email: meetings@immunology.org; Web: bsi.immunology.org/netcommunity/page.aspx?pid=228&srcid=228).

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PRESCRIBING INFORMATION Testogel® (testosterone) Presentation: Sachet containing 50mg testosterone in 5g colourless gel. **Uses:** Testosterone replacement therapy for male hypogonadism when testosterone deficiency confirmed by clinical features and biochemical tests. **Dosage:** One 5g gel sachet daily. Can be adjusted in 2.5g gel steps, to a maximum of 10g gel daily. Once sachet opened, apply immediately onto clean, dry healthy skin over both shoulders, or both arms or abdomen. Do not apply to genital areas. **Children:** Not for use in children. Not evaluated clinically in males under 18. **Contra-indications:** Known or suspected prostate or breast cancer. Hypersensitivity to testosterone or any constituents of the gel. **Warnings and precautions:** Before therapy exclude prostate cancer. Examine prostate and breast at least annually, or twice yearly in elderly or at risk patients (clinical or familial factors). Monitor serum calcium concentrations in cancer patients at risk of hypercalcaemia (and hypercalcinuria). Testogel may cause oedema with or without congestive cardiac failure in patients with severe cardiac, hepatic or renal insufficiency. In this case, stop treatment immediately. Use with caution in patients with ischaemic heart disease, hypertension, epilepsy and migraine. Periodically check testosterone concentrations, haemoglobin, haematocrit, liver function (tests), lipid profile. Possible increased risk of sleep apnoea especially if obesity or chronic respiratory disease present. Improved insulin sensitivity may occur. Irritability, nervousness, weight gain, prolonged or frequent erections may indicate excessive androgen exposure requiring dose adjustment. If severe application site reactions occur, discontinue if necessary. Testosterone may produce a positive reaction in anti-doping tests. Not for use in women. Testosterone gel can be transferred to others by close skin to skin contact and can lead to adverse effects (inadvertent androgenisation) if repeated contact. Inform patient of transfer risk that is prevented by clothing or washing of application site. Testogel should not be prescribed for patients who may not comply with safety instructions (e.g. alcoholics, drug abusers, psychiatric patients). Pregnant women must avoid any contact with the application sites. Interactions reported with oral anticoagulants, ACTH or corticosteroids, and thyroxin binding globulin in laboratory tests. **Side-effects:** Most common (10%) were: skin reactions. Also reported were: changes in laboratory tests (polycythaemia, lipids), headache, prostatic disorders, gynaecomastia, mastodynia, dizziness, paraesthesia, amnesia, hyperaesthesia, mood disorders, hypertension, diarrhoea, alopecia, urticaria. Other known reactions to testosterone treatments are: muscle cramps; nervousness; depression; hostility; sleep apnoea; skin reactions; libido changes; more frequent erections; hypersensitivity reactions; rarely: jaundice, liver function tests, priapism, prostate abnormalities, prostate cancer (inconclusive), urinary obstruction. During high dose and/or prolonged treatment: weight gain, electrolyte changes, reversible interruption or reduction of spermatogenesis, water retention, oedema, rarely: hepatic neoplasms. Frequent applications may cause irritation and dry skin. **Basic NHS Price:** £33.00 per pack of 30 x 5g sachets **Legal Classification:** POM **Product Licence Number:** 16468/0005 **Product Licence Holder:** Laboratoires BESINS INTERNATIONAL 5, rue du Bourg L'Abbé 75003 Paris France **Distributed by:** Bayer plc., Bayer House, Strawberry Hill, Newbury, Berkshire RG14 1JA **Testogel is a registered trademark of Laboratoires BESINS INTERNATIONAL PI revised:** 1 May 2008 8TEST02b March 2008

Information about adverse reaction reporting in the UK can be found at www.yellowcard.gov.uk. Alternatively, adverse reactions can be reported to Bayer plc by email: phdsguk@bayer.co.uk

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